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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,556

06/27/2006

Hee-Woo Rhee

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1862

441 7590 09/29/2009

SMITH, GAMBRELL & RUSSELL  
1130 CONNECTICUT AVENUE, N.W., SUITE 1130  
WASHINGTON, DC 20036

EXAMINER

ONEILL, KARIE AMBER

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/29/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/564,556	<b>Applicant(s)</b> RHEE ET AL.	
	<b>Examiner</b> Karie O'Neill	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1-13-06</u>   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group I, Claims 1-6 and 9-10, in the reply filed on September 14, 2009, is acknowledged.

***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) or (f), which papers have been placed of record in the file.

***Information Disclosure Statement***

3. Information disclosure statement (IDS), submitted January 13, 2006, has been received and considered by the examiner.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennige et al. (US 2004/0038105 A1).

Hennige et al. discloses a proton-conducting membrane for use in the membrane electrode assembly of a fuel cell (paragraphs 0101-0102) having a thickness of less

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than 200 $\mu$ m, more preferably 100 $\mu$ m, and with very particular preference less than 5 or 20 $\mu$ m (paragraph 0035). Hennige et al. discloses wherein the proton-conducting membrane is a composite material comprising at least one organic and/or inorganic material that has ion-conducting properties dispersed in a polyelectrolyte or polymer solution (paragraphs 0030-0035 and 0050). Hennige et al. discloses the ion-conducting material is at least one compound selected from phosphates, phosphides, phosphonates, sulfates, sulfonates, sulfoarylphosphonates, and mixtures of these compounds, with least one of the elements Al, Si, P, Sn, Sb, K, Na, Ti, Fe, Zr, Y, W, Mo, Ca, Mg, Li, Cr, Mn, Co, Ni, Cu, or Zn (paragraph 0033) in the amount of from 0.1 to 50% by weight, with particular preference from 1 to 10% by weight (paragraph 0041). Hennige et al. discloses the polyelectrolytes or polymers which carry fixed charges are sulfonated polytetrafluoroethylene, sulfonated polyvinylidene fluoride, aminolyzed polytetrafluoroethylene, aminolyzed polyvinylidene fluoride, sulfonated polysulfone, aminolyzed polysulfone, sulfonated polyether imide, aminolyzed polyether imide, sulfonated polyether ketone or polyether ether ketone, aminolyzed polyether ketone or polyether ether ketone, or a mixture thereof. The fraction of the polyelectrolytes or of the polymers which carry fixed charges in the melt or solution used is preferably from 0.001% by weight to 50% by weight, with particular preference from 0.01% to 25% (paragraph 0050). Hennige et al. does not specifically disclose wherein the proton-conducting polymer is 100 parts by weight. It would have been obvious to one of ordinary skill in the art at the time of the invention to use 100 parts by weight to increase the amount of proton-conducting material present in the polymer membrane, since it

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has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. See MPEP 2144.05.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571)272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICK RYAN/  
Supervisory Patent Examiner, Art Unit 1795

Karie O'Neill  
Examiner  
Art Unit 1795

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